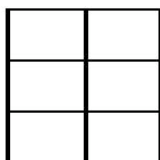


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Task 1:

A square has an area of 144 square inches. Suppose the square is partitioned into six congruent rectangles as shown below. How many inches are there in the perimeter of one of the six rectangles?



Task 2:

How many lines of symmetry does the figure on the right have under each of the following conditions:

1. We take into account the patterns on the tile.
2. We only look at the tile shape, devoid of decorations.

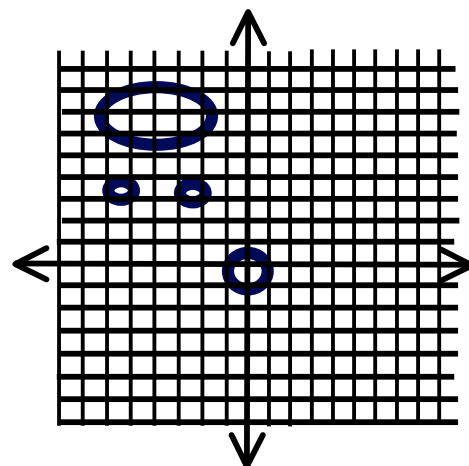


Task 3:

Define the circles at the right in terms of the following:

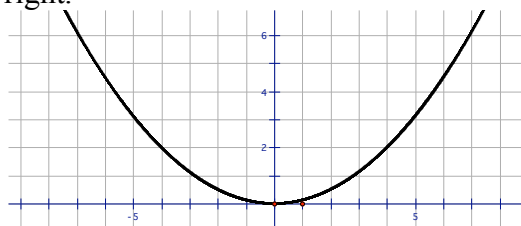
1. The definition of a circle as a plane figure.
2. The definition of a circle as a conic section.
3. The definition of a circle as a form on a sphere

If the question were for the ellipse, what would have to change? Why?



Task 4:

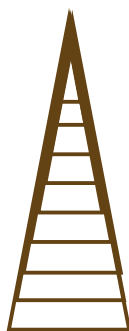
Determine the volume of the solid of revolution pictured at the right.



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Task 5:

All of the triangles below are similar. If the altitude of the largest triangle is 20 cm and its base is 5 cm, and the constant of proportionality is $\frac{4}{5}$ what is the area of the smallest triangle?



Task 6:

Perspective makes the height of the rows of street lights seem to get smaller as we move to the back of the picture. If the initial heights are as given below, what could be the perceived height of the 20th light, if the lights went on to the vanishing point?

20', 18', 16.2', 14.58', 13.122',...

Task 7:

What percent of the design at the right is composed of the following pieces:

- Large Circles
- Truncated pyramids
 - Light
 - Dark
- Octagons
- Squares
- Other shapes

Hey, why does this add up to more than 100%?

